

## PCT COOPERATION TREATY

## PCT

## NOTIFICATION RELATING TO PRIORITY CLAIM

(PCT Rules 26bis.1 and 26bis.2 and  
Administrative Instructions, Sections 402 and 409)

From the INTERNATIONAL BUREAU

To:

WATTS, Christopher, Malcom, Kelway  
Lucent Technologies UK Limited  
5 Mornington Road  
Woodford Green  
Essex IG8 0TU  
ROYAUME-UNI

Date of mailing (day/month/year) 15 September 2000 (15.09.00)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference M.COSTA 8-8	
International application No. PCT/EP00/05706	International filing date (day/month/year) 20 June 2000 (20.06.00)
Applicant LUCENT TECHNOLOGIES INC. et al	

The applicant is hereby notified of the following in respect of the priority claim(s) made in the international application.

1. ☒ **Correction of priority claim.** In accordance with the applicant's notice received on: 15 August 2000 (15.08.00), the following priority claim has been corrected to read as follows:  

**GB 20 August 1999 (20.08.99) 9919851.7**

☐ even though the indication of the number of the earlier application is missing.

☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
2. ☐ **Addition of priority claim.** In accordance with the applicant's notice received on: , the following priority claim has been added:  

☐ even though the indication of the number of the earlier application is missing.

☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
3. ☐ As a result of the correction and/or addition of (a) priority claim(s) under items 1 and/or 2, the (earliest) priority date is:
4. ☐ **Priority claim considered not to have been made.**

☐ The applicant failed to respond to the Invitation under Rule 26bis.2(a) (Form PCT/IB/316) within the prescribed time limit.

☐ The applicant's notice was received after the expiration of the prescribed time limit under Rule 26bis.1(a).

☐ The applicant's notice failed to correct the priority claim so as to comply with the requirements of Rule 4.10.

The applicant may, before the technical preparations for international publication have been completed and subject to the payment of a fee, request the International Bureau to publish, together with the international application, information concerning the priority claim. See Rule 26bis.2(c) and the PCT Applicant's Guide, Volume I, Annex B2(II).
5. ☐ In case where multiple priorities have been claimed, the above item(s) relate to the following priority claim(s):
6. A copy of this notification has been sent to the receiving Office and
  - ☒ to the International Searching Authority (where the international search report has not yet been issued).
  - ☒ the designated Offices (which have already been notified of the receipt of the record copy).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 740.14.35</p>	<p>Authorized officer  Dorothee Mülhausen</p> <p>Telephone No. (41-22) 338.83.38</p>
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# PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

**PCT**

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing: 01 March 2001 (01.03.01)	
International application No.: PCT/EP00/05706	Applicant's or agent's file reference: M.COSTA 8-8
International filing date: 20 June 2000 (20.06.00)	Priority date: 20 August 1999 (20.08.99)
Applicant: COSTA, Mauro et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:  
11 November 2000 (11.11.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer:</p> <p>J. Zahra</p> <p>Telephone No.: (41-22) 338.83.38</p>
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## P. ENT COOPERATION TREA

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

WATTS, Christopher, Malcom, Kelway  
Lucent Technologies UK Limited  
5 Mornington Road  
Woodford Green  
Essex IG8 0TU  
ROYAUME-UNI

Date of mailing (day/month/year) 26 February 2001 (26.02.01)	<b>IMPORTANT NOTIFICATION</b>  International filing date (day/month/year) 20 June 2000 (20.06.00)
Applicant's or agent's file reference M.COSTA 8-8	
International application No. PCT/EP00/05706	

## 1. The following indications appeared on record concerning:

☒ the applicant      ☒ the inventor      ☐ the agent      ☐ the common representative

## Name and Address

PALAT, Sudeep, Kumar  
26 Heytsbury Gardens  
Grange Park  
Swindon  
Wiltshire SN5 6EE  
United Kingdom

## State of Nationality

IN

## State of Residence

GB

Telephone No.

Facsimile No.

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person      ☐ the name      ☒ the address      ☐ the nationality      ☐ the residence

## Name and Address

PALAT, Sudeep, Kumar  
17 Heytsbury Gardens  
Grange Park  
Swindon  
Wiltshire SN5 6EE  
United Kingdom

## State of Nationality

IN

## State of Residence

GB

Telephone No.

Facsimile No.

Teleprinter No.

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

☒ the receiving Office      ☐ the designated Offices concerned  
☐ the International Searching Authority      ☒ the elected Offices concerned  
☒ the International Preliminary Examining Authority      ☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Athina Nickitas-Etienne  Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

WATTS, Christopher, Malcom, Kelway  
Lucent Technologies UK Limited  
5 Mornington Road  
Woodford Green  
Essex IG8 0TU  
ROYAUME-UNI

Date of mailing (day/month/year) 26 February 2001 (26.02.01)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference M.COSTA 8-8	
International application No. PCT/EP00/05706	International filing date (day/month/year) 20 June 2000 (20.06.00)

## 1. The following indications appeared on record concerning:

☒ the applicant      ☒ the inventor      ☐ the agent      ☐ the common representative

Name and Address COSTA, Mauro 11 Willowbank Chippenham Wiltshire SN5 6PP United Kingdom	State of Nationality IT	State of Residence GB
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person      ☐ the name      ☒ the address      ☐ the nationality      ☒ the residence

Name and Address COSTA, Mauro Via Dabusti 55 Casteggio 27045 Pavia Italy	State of Nationality IT	State of Residence IT
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

☒ the receiving Office      ☐ the designated Offices concerned  
☐ the International Searching Authority      ☒ the elected Offices concerned  
☒ the International Preliminary Examining Authority      ☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Athina Nickitas-Etienne Telephone No.: (41-22) 338.83.38
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)

To:

WATTS, Christopher M.K.  
LUCENT TECHNOLOGIES UK LIMITED  
5 Mornington Road  
Woodford Green  
Essex IG8 0TU  
GRANDE BRETAGNE

Date of mailing  
(day/month/year) 15.10.2001

Applicant's or agent's file reference  
M.COSTA 8-8-5-7

### IMPORTANT NOTIFICATION

International application No.  
PCT/EP00/05706

International filing date (day/month/year)  
20/06/2000

Priority date (day/month/year)  
20/08/1999

Applicant  
LUCENT TECHNOLOGIES INC

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

*Sen  
DPS*

Name and mailing address of the IPEA/



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer

Finnie, A

Tel. +49 89 2399-8251



(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
1 March 2001 (01.03.2001)

PCT

(10) International Publication Number  
**WO 01/15470 A1**

(51) International Patent Classification<sup>7</sup>: **H04Q 7/22**

(21) International Application Number: **PCT/EP00/05706**

(22) International Filing Date: **20 June 2000 (20.06.2000)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
9919851.7 20 August 1999 (20.08.1999) **GB**

(71) Applicant (for all designated States except US): **LU-CENT TECHNOLOGIES INC. [US/US]; 600 Mountain Avenue, Murray Hill, NJ 07974-0636 (US).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **COSTA, Mauro [IT/GB]; 11 Willowbank, Chippenham, Wiltshire SN5 6PP (GB). PALAT, Sudeep, Kumar [IN/GB]; 26 Heytsbury Gardens, Grange Park, Swindon, Wiltshire SN5 6EE**

(GB). **ROBERTS, Michael [GB/GB]; 127 East Street, Prittlewell, Southend-on-Sea, Essex SS2 5EB (GB). SIVAGNANASUNDARAM, Sutha [LK/GB]; 93 Lines Road, Tooting, London SW17 4EJ (GB).**

(74) Agents: **WATTS, Christopher, Malcom, Kelway et al.; Lucent Technologies UK Limited, 5 Mornington Road, Woodford Green, Essex IG8 0TU (GB).**

(81) Designated States (national): **AU, BR, CA, CN, ID, IN, JP, KR, US.**

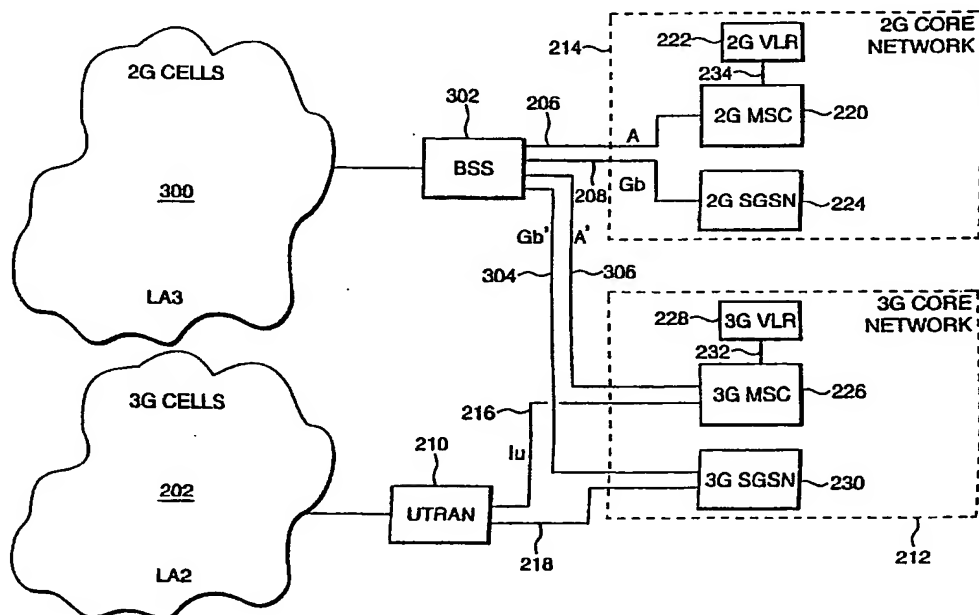
(84) Designated States (regional): **European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).**

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **CORE NETWORK ALLOCATION FOR GSM/UMTS**



(57) Abstract: A packet switched network architecture comprising a location area connected by a radio access network to at least two core networks having different functionality, wherein the radio access network switches packet transmissions from each terminal in the location area to one of the at least two core networks.

# INTERNATIONAL SEARCH REPORT

Internal Application No  
PCT/E 00/05706

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04Q7/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 01991 A (NOKIA TELECOMMUNICATIONS OY ;HUUSKO SAMI (FI)) 14 January 1999 (1999-01-14) page 2, line 1 - line 28 page 8, line 17 -page 9, line 28; figures 1,2	1,5
X	BERRUTO E: "RESEARCH ACTIVITIES ON UMTS RADIO INTERFACE, NETWORK ARCHITECTURES, AND PLANNING" IEEE COMMUNICATIONS MAGAZINE, US, IEEE SERVICE CENTER. PISCATAWAY, N.J., vol. 36, no. 2, 1 February 1998 (1998-02-01), pages 82-95, XP000740416 ISSN: 0163-6804 page 88; figures 4,5 page 89 -page 91	1,5

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

23 October 2000

Date of mailing of the international search report

30/10/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Tsapelis, A

## INTERNATIONAL SEARCH REPORT

Intern: [REDACTED] Application No [REDACTED]

PCT/EP00/05706

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9901991 A	14-01-1999	FI 972815 A	31-12-1998
		AU 7920798 A	25-01-1999
		EP 0993718 A	19-04-2000
<hr/>			



Thus as a dual mode mobile terminal moves around within radio access areas, changes in the type of radio access can be expected as the available radio access systems change. As the mobile terminal moves between radio access areas routing area updates occur to notify the necessary support  
5 network of the new position of the mobile in the routing area associated with the particular radio access type. Changing between two radio access systems involves additional signalling and can also lead to outages during the transition between the two systems. The impact of the additional signalling and outages depends on the network architecture and the  
10 protocols chosen.

In addition, if a mobile terminal operating in the 3G mode of operation moves out of 3G coverage, then there is a consequential degradation in service when communication with the 2G core network is established.

It is an object of the present invention to provide an improved network  
15 architecture suitable for an architecture in which at least two functional modes of operation exist.

#### .7 Summary of the Invention

According to the present invention there may be provided a packet switched network architecture comprising a location area connected by a  
20 radio access network to at least two core networks having different functionality, wherein the radio access network switches packet transmissions from each terminal in the location area to one of the at least two core networks.

The radio access network may switch packet transmissions from each  
25 terminal to one of the at least two core networks in dependence on the terminals capabilities.

The radio access network may switch packet transmissions from each terminal to one of the at least two core networks in dependence on the terminal type.

Claims

1. A packet switched network architecture comprising a location area  
connected by a radio access network to at least two core networks  
having different functionality, wherein the radio access network  
switches packet transmissions from each terminal in the location area  
to one of the at least two core networks.
2. The packet switched network architecture of claim 1 in which the radio  
access network switches packet transmissions from each terminal to  
one of the at least two core networks in dependence on the terminals  
capabilities.
3. The packet switched network architecture of claim 1 in which the radio  
access network switches packet transmissions from each terminal to  
one of the at least two core networks in dependence on the terminal  
type.
4. The packet switched network architecture of claim 1 in which the radio  
access network switches packet transmissions from each terminal to  
one of the at least two core networks in dependence on the identity of  
the cell in which the terminal is connected.
5. A method of allocating resources in a packet switched mobile network,  
comprising: allocating at least two core network resources to a location  
area; associating each mobile user in the location area with one of the  
core network resources; and switching packet transmissions from  
mobile users in the location area to the associated one of the core  
network resources.

10/069360

PATENT COOPERATION TREATY

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REC'D 17 OCT. 2001

WIPO PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

7

Applicant's or agent's file reference M.COSTA 8-8-5-7	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/05706	International filing date (day/month/year) 20/06/2000	Priority date (day/month/year) 20/08/1999
International Patent Classification (IPC) or national classification and IPC H04Q7/22		
Applicant LUCENT TECHNOLOGIES INC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of three sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  11/11/2000	Date of completion of this report  15.10.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Aguilar Cabarrus, E  Telephone No. +49 89 2399 7524  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05706

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

1,3-12	as originally filed		
2,2a	as received on	17/09/2001	with letter of 14/09/2001

### Claims, No.:

1-4	as received on	17/09/2001	with letter of 14/09/2001
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### Drawings, sheets:

1/4-4/4	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05706

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-4
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-4
Industrial applicability (IA)	Yes:	Claims	1-4
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**Reference is made to the following documents:**

- D2:** BERRUTO E: 'RESEARCH ACTIVITIES ON UMTS RADIO INTERFACE, NETWORK ARCHITECTURES, AND PLANNING' IEEE COMMUNICATIONS MAGAZINE, US, IEEE SERVICE CENTER. PISCATAWAY, N.J, vol. 36, no. 2, 1 February 1998 (1998-02-01), pages 82-95, ISSN: 0163-6804
- D3:** WO 99 01991 A

**The document:**

- D1:** SCHIEDER A ET AL: 'GRAN - A NEW CONCEPT FOR WIRELESS ACCESS IN UMTS' ISS. WORLD TELECOMMUNICATIONS CONGRESS. (INTERNATIONAL SWITCHING SYMPOSIUM), CA, TORONTO, PINNACLE GROUP, 21 September 1997 (1997-09-21), pages 339-345,

was not cited in the international search report. A copy of the document was handed out to the Applicant.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The present application does not meet the requirements of Article 33 PCT because the subject-matter of **claim 1** does not imply an inventive step. This will be discussed in the following.

Document **D1** (see in particular abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3) cited in the search report (applying the terminology of present **claim 1** and references of or to **D1**) discloses a packet switched network architecture comprising a location area connected by a radio access network to at least two core networks having different functionality, wherein the radio access network switches packet transmissions from each terminal in the location area to one of the at least two core networks (abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3).

These features of **claim 1** are disclosed in documents **D2** (page 89, paragraph "The generic Radio Access Radio Network"; fig. 5 and 6) and **D3** (page 2, lines 1-29; fig. 1) as well.

The packet switched network of **claim 1** differs from that of document **D1** solely in that the switch of the packet transmissions is made **in dependence on the terminals capabilities**. This feature, however, is merely one of several straightforward possibilities from which the skilled person would select, in accordance with the circumstances, without the exercise of inventive skill, in order to solve the problem of deciding under which criteria the packet transmissions should be switched to the one or the other core network. This will be in some cases emphasised by the fact, that for some terminals it will be mandatory that the packet transmissions sent by them will have to be switched to a determined one of these at least two core networks, exactly because of the capabilities supported by these terminals, ie. there will be no other possibility. For these reasons, no inventive step can be acknowledged for the subject-matter of **claim 1**.

As a consequence, **claim 1** does not meet the requirements of Article 33(3) PCT.

2. Independent **claim 4** is a mere reformulation of claim 1 in order to define the method performed by the network architecture described in claim 1. Therefore, the same arguments with regard to inventive step apply.

Thus, **claim 5** does also not meet the requirements of Article 33(3) PCT.

3. Furthermore, **dependent claims 2 and 3** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step for the reason that the subject-matter of said claims is **either in principle** directly derivable from the disclosure of document **D1** (see for **claims 2 and 3** pages 343-344, paragraphs 4.2-4.4) or represents simple design details which are generally known to the person skilled in the field of packet switched telecommunication systems.

As a consequence, **claims 2 and 3** do not meet the requirements of Article 33(3) PCT for lack of inventive step of their subject-matter.

10/069360

PATENT COOPERATION TREATY

PCT

RECEIVED 17 OCT 2001

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

7

Applicant's or agent's file reference M.COSTA 8-8-5-7	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/05706	International filing date (day/month/year) 20/06/2000	Priority date (day/month/year) 20/08/1999
International Patent Classification (IPC) or national classification and IPC H04Q7/22		
Applicant LUCENT TECHNOLOGIES INC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of three sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
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- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  11/11/2000	Date of completion of this report  15.10.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Aguilar Cabarrus, E  Telephone No. +49 89 2399 7524 



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05706

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

1,3-12	as originally filed		
2,2a	as received on	17/09/2001	with letter of 14/09/2001

### Claims, No.:

1-4	as received on	17/09/2001	with letter of 14/09/2001
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### Drawings, sheets:

1/4-4/4	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05706

- ☐ the description,      pages:
- ☐ the claims,      Nos.:
- ☐ the drawings,      sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims 1-4
	No:	Claims
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-4
Industrial applicability (IA)	Yes:	Claims 1-4
	No:	Claims

2. Citations and explanations  
**see separate sheet**

**Reference is made to the following documents:**

**D2:** BERRUTO E: 'RESEARCH ACTIVITIES ON UMTS RADIO INTERFACE, NETWORK ARCHITECTURES, AND PLANNING' IEEE COMMUNICATIONS MAGAZINE, US, IEEE SERVICE CENTER. PISCATAWAY, N.J, vol. 36, no. 2, 1 February 1998 (1998-02-01), pages 82-95, ISSN: 0163-6804

**D3:** WO 99 01991 A

**The document:**

**D1:** SCHIEDER A ET AL: 'GRAN - A NEW CONCEPT FOR WIRELESS ACCESS IN UMTS' ISS. WORLD TELECOMMUNICATIONS CONGRESS. (INTERNATIONAL SWITCHING SYMPOSIUM), CA, TORONTO, PINNACLE GROUP, 21 September 1997 (1997-09-21), pages 339-345,

was not cited in the international search report. A copy of the document was handed out to the Applicant.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The present application does not meet the requirements of Article 33 PCT because the subject-matter of **claim 1** does not imply an inventive step. This will be discussed in the following.

Document **D1** (see in particular abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3) cited in the search report (applying the terminology of present **claim 1** and references of or to **D1**) discloses a packet switched network architecture comprising a location area connected by a radio access network to at least two core networks having different functionality, wherein the radio access network switches packet transmissions from each terminal in the location area to one of the at least two core networks (abstract, lines 12-28; page 341, right column, lines 20-25; fig. 3).

These features of **claim 1** are disclosed in documents **D2** (page 89, paragraph "The generic Radio Access Radio Network"; fig. 5 and 6) and **D3** (page 2, lines 1-29; fig. 1) as well.

The packet switched network of **claim 1** differs from that of document **D1** solely in that the switch of the packet transmissions is made **in dependence on the terminals capabilities**. This feature, however, is merely one of several straightforward possibilities from which the skilled person would select, in accordance with the circumstances, without the exercise of inventive skill, in order to solve the problem of deciding under which criteria the packet transmissions should be switched to the one or the other core network. This will be in some cases emphasised by the fact, that for some terminals it will be mandatory that the packet transmissions sent by them will have to be switched to a determined one of these at least two core networks, exactly because of the capabilities supported by these terminals, ie. there will be no other possibility. For these reasons, no inventive step can be acknowledged for the subject-matter of **claim 1**.

As a consequence, **claim 1** does not meet the requirements of Article 33(3) PCT.

2. Independent **claim 4** is a mere reformulation of claim 1 in order to define the method performed by the network architecture described in claim 1. Therefore, the same arguments with regard to inventive step apply.

Thus, **claim 5** does also not meet the requirements of Article 33(3) PCT.

3. Furthermore, **dependent claims 2 and 3** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step for the reason that the subject-matter of said claims is **either in principle** directly derivable from the disclosure of document **D1** (see for **claims 2 and 3** pages 343-344, paragraphs 4.2-4.4) or represents simple design details which are generally known to the person skilled in the field of packet switched telecommunication systems.

As a consequence, **claims 2 and 3** do not meet the requirements of Article 33(3) PCT for lack of inventive step of their subject-matter.

Thus as a dual mode mobile terminal moves around within radio access areas, changes in the type of radio access can be expected as the available radio access systems change. As the mobile terminal moves between radio access areas routing area updates occur to notify the necessary support network of the new position of the mobile in the routing  
5 area associated with the particular radio access type. Changing between two radio access systems involves additional signalling and can also lead to outages during the transition between the two systems. The impact of the additional signalling and outages depends on the network architecture and the protocols chosen.

10 In addition, if a mobile terminal operating in the 3G mode of operation moves out of 3G coverage, then there is a consequential degradation in service when communication with the 2G core network is established.

It is an object of the present invention to provide an improved network architecture  
15 suitable for an architecture in which at least two functional modes of operation exist.

The paper by Schieder A Et Al entitled 'Gran- A New Concept for Wireless Access in UMTS' ISS. World Telecommunications Congress. (International Switching Symposium), CA, Toronto, Pinnacle Group, 21 September 1997 (1997-09-21), pages  
20 339-345, discloses a packet switched network architecture comprising a location area connected by a radio access network to at least two core networks having different functionality, wherein the radio access network switches packet transmissions from each terminal in the location area to one of the at least two core networks.

## 25 Summary of the Invention

The present invention is characterised over the disclosure of the Scheider paper mentioned above in that the radio access network switches packet transmissions from each terminal to one of the at least two core networks in dependence on the terminals  
30 capabilities.

- 2a -

- 5 The radio access network may switch packet transmissions from each terminal to one of the at least two core networks in dependence on the terminal type.

**Claims**

1. A packet switched network architecture comprising a location area connected by a radio access network to at least two core networks having different functionality, wherein the radio access network switches packet transmissions from  
5 each terminal in the location area to one of the at least two core networks characterised  
in that the radio access network switches packet transmissions from each terminal to one of the at least two core networks in dependence on the terminals capabilities.
2. The packet switched network architecture of claim 1 in which the radio access network switches packet transmissions from each terminal to one of the at  
10 least two core networks in dependence on the terminal type.
3. The packet switched network architecture of claim 1 in which the radio access network switches packet transmissions from each terminal to one of the at least two core networks in dependence on the identity of the cell in which the terminal is connected.
- 15 4. A method of switching packet transmissions in a packet switched network from each terminal in a location area connected by a radio access network to one of at least two core networks having different functionality characterised by the radio access network switching packet transmissions from each terminal to one of the at least two core networks in dependence on the terminal's capabilities.

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## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>M.COSTA 8-8-</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/EP 00/05706</b>	International filing date (day/month/year) <b>20/06/2000</b>	(Earliest) Priority Date (day/month/year) <b>24/08/1999</b>
Applicant  <b>LUCENT TECHNOLOGIES INC</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

3  
☐ None of the figures.



## INTERNATIONAL SEARCH REPORT

International Application No

EP 00/05706

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04Q7/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 01991 A (NOKIA TELECOMMUNICATIONS OY ;HUUSKO SAMI (FI)) 14 January 1999 (1999-01-14) page 2, line 1 - line 28 page 8, line 17 -page 9, line 28; figures 1,2	1,5
X	----- BERRUTO E: "RESEARCH ACTIVITIES ON UMTS RADIO INTERFACE, NETWORK ARCHITECTURES, AND PLANNING" IEEE COMMUNICATIONS MAGAZINE, US, IEEE SERVICE CENTER. PISCATAWAY, N.J., vol. 36, no. 2, 1 February 1998 (1998-02-01), pages 82-95, XP000740416 ISSN: 0163-6804 page 88; figures 4,5 page 89 -page 91 -----	1,5

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

23 October 2000

Date of mailing of the international search report

30/10/2000

Name and mailing address of the ISA

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Authorized officer

Tsapelis, A

## INTERNATIONAL SEARCH REPORT

### Information on patent family members

International Application No

REF 00/05706

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9901991 A	14-01-1999	FI 972815 A	31-12-1998
		AU 7920798 A	25-01-1999
		EP 0993718 A	19-04-2000
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